

2/25/2003

**Habitat Conservation Plan
for Florida Key Deer
(Odocoileus virginianus clavium)
and other Protected Species on
Big Pine Key and No Name Key,
Monroe County, Florida**

Prepared for:

**U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960-3559**

Prepared by:

**Florida Department of Transportation, District VI
1000 NW 111th Avenue, Room #6101
Miami, Florida 33172**

**Monroe County
2798 Overseas Highway, Suite 410
Marathon, Florida 33050**

**Florida Department of Community Affairs
2796 Overseas Highway, Suite 212
Marathon, Florida 33050**

With assistance from consultants:

**URS Corporation
700 S. Royal Poinciana Blvd., Suite 1000
Miami Springs, Florida 33166**

March 2003

Table of Contents

1. INTRODUCTION AND BACKGROUND.....	6
1.1 Background and Purpose of the Plan	6
1.1.1 Historical Background and Memorandum of Agreement.....	8
1.1.2 Coordinating Committee.....	9
1.1.3 Objectives of the Plan	9
1.2 Plan Development Process and Methodology	10
1.2.1 Technical Studies	10
1.2.2 Public Information and Involvement	10
1.3 HCP Covered Area	12
1.4 Regulatory Basis of the HCP	12
1.4.1 Endangered Species Act	12
1.4.2 Clean Water Act.....	13
2. BIOLOGICAL CONDITIONS.....	14
2.1 Covered Species.....	14
2.1.1 Florida Key Deer (<i>Odocoileus virginianus clavium</i>).....	14
2.1.2 Lower Keys Marsh Rabbit (<i>Sylvilagus palustris hefneri</i>).....	15
2.1.3 Eastern Indigo Snake (<i>Drymarchon corais couperi</i>)	19
2.2 Vegetation and Habitat	19
2.2.1 Pinelands	20
2.2.2 Hammocks	22
2.2.3 Freshwater Wetlands.....	23
2.2.4 Saltwater Marsh/Buttonwood Marsh	24
2.2.5 Mangroves.....	24
2.3 Scientific Basis of the HCP: The Key Deer Population Viability Analysis (PVA) Model and Its Application.....	25
2.3.1 Field Studies of the Population Dynamics of the Key Deer	25
2.3.2 Development of the Key Deer Population Viability Analysis Model	26
2.3.3 PVA Model Analysis and Results	29
2.3.4 Application of the PVA Model to the Habitat Conservation Plan	31
3. LAND USE CONDITIONS.....	35
3.1 Introduction.....	35
3.2 Land Ownership.....	35
3.3 Habitat Management Activities	36
3.4 Covered Activities	38
4. ALTERNATIVE PLANNING STRATEGIES	40
4.1 Introduction.....	40
4.2 Planning Strategies Analyzed	41
4.2.1 Planning Strategy #1: No Action Alternative/No Take	41
4.2.2 Planning Strategy #2: Reduced Take	41
4.2.3 Planning Strategy #3: Proposed Alternative	42
4.3 Comparison of Alternatives	42

5. CONSERVATION STRATEGY AND PROCEDURES.....	43
5.1 Biological Goals.....	43
5.2 Summary of Take and Its Effects on the Covered Species	44
5.3 Conservation Strategy - Mitigation Measures and Procedures.....	45
5.3.1 Conservative Assumptions and Level of Take	45
5.3.2 Avoidance and Minimization.....	46
5.3.3 Habitat Mitigation and Habitat Banking.....	49
5.3.4 Habitat Management.....	50
5.3.5 Regulatory Actions	50
5.3.6 Other Considerations	51
5.4 Monitoring and Reporting.....	51
5.4.1 Reporting.....	53
6. IMPLEMENTATION AND FINANCING.....	55
6.1 Regulatory Actions	55
6.1.1 Roles and Responsibilities	55
6.1.2 Implementation Schedule.....	55
6.2 Funding	56
6.3 Permit Amendment Procedures	57
6.4 Permit Renewal.....	58
7. REFERENCES.....	59
7.1 Agencies and Persons Contacted	59
7.2 Bibliography	60
8. LIST OF PREPARERS.....	68
8.1 URS Corporation	68
8.2 Sub-Consultants	68

List of Figures

Figure 1.1	Project area
Figure 2.1	Key deer locations from telemetry data
Figure 2.2	Marsh rabbit habitat
Figure 2.3	Vegetative cover of Big Pine Key and No Name Key
Figure 2.4	Six grid layers used to generate weighting factor grid
Figure 2.5	Key deer PVA model grid layers
Figure 2.6	Tier classification system in the project area
Figure 3.1	Land ownership n the project area
Figure 5.1	Relationship between human-induced Key deer mortality and deer density
Figure 5.2	Key deer corridor across Sands Subdivision

List of Tables

Table 1.1	HCP public meetings
Table 2.1	Covered Species
Table 2.2	Habitat type distribution within the project area
Table 2.3	Gender and age-classes of radio collared Key deer in Big Pine Key and No Name Key, 1998-1999
Table 2.4	Effect of development on Key deer
Table 2.5	H multiplier for land use categories
Table 2.6	Tier classification system
Table 3.1	Land Ownership in the project area as of mid-2002
Table 5.1	Estimated loss of native vegetation from covered activities
Table 5.2	Impacts and mitigation in Big Pine Key and No Name Key, 1995 – present
Table 5.3	Projected budget for monitoring Key deer population for 20-year period
Table 6.1	Estimated cost of the HCP